



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,205	07/31/2003	Gerard Chauvel	TI-35432 (1962-05411)	3321
23494	7590	03/27/2006	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED			LUK, LAWRENCE W	
P O BOX 655474, M/S 3999			ART UNIT	
DALLAS, TX 75265			PAPER NUMBER	

2187

DATE MAILED: 03/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/631,205	CHAUVEL ET AL.	
	Examiner	Art Unit	
	Lawrence W. Luk	2187	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/31/03;3/17/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 9 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Raz et al. (6,606,743).

Claims 9 and 1

As to claims 9 and 1, Raz et al. disclose in figure 1 and 2, a system, comprising: a memory (30); a controller (16) coupled to the memory (30); a stack (12) that exists in the memory (30); wherein the memory (30) further comprises a cache memory (35, see column 3, lines 66-67) and a main memory (30); and wherein the controller adjusts its management policies depending on whether data that is being removed corresponds to a predetermined word in a cache line (see column 4, lines 19-36).

Claims 10 and 2

As to claims 10 and 2, Raz et al. disclose in column 4, lines 19-36, wherein the predetermined word is the first word in the cache line.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11, 12, 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raz et al. (6,606,743) in view of Rowlands et al. (6,748,495).

Claims 11, 12, 3 and 4

As to claims 11, 12, 3 and 4, Raz et al. disclose the elements as claimed except Raz et al. fails to teach the limitation of **wherein the cache line is invalidated and wherein the invalidated cache line is queued for replacement by a replacement policy**.

Rowlands et al. disclose in column 7, lines 18-27, wherein the cache line is invalidated and wherein the invalidated cache line is queued for replacement by a replacement policy.

Raz et al. and Rowlands et al. are analogous art because they are from same field of endeavor of computer processing.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include wherein the invalidated cache line is queued for replacement by a replacement policy.

The suggestion/motivation for doing so would have been to provides the random number generator circuit is used to generate a replacement way for a cache. **(see column 2, lines 28-29 of Rowlands et al.).**

Therefore, it would have been obvious to combine Rowlands et al. with Raz et al. for the invalidated cache line is queued for replacement by a replacement policy to obtain the invention as specified in claims 11, 12, 3 and 4.

5. Claims 13 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raz et al. (6,606,743) in view of Rowlands et al. (6,748,495) as applied to claims 12 and 4 above, and further in view of Taylor et al. (5,699,551).

Claims 13 and 5

As to claims 13 and 5, Raz et al. in view of Rowlands et al. disclose the elements as claimed except Raz et al. in view of Rowlands et al. fails to teach the limitation of **wherein the replacement policy is LRU.**

Taylor et al. disclose in column 7, lines 53-54, wherein the replacement based on an algorithm such as Least Recently Used (LRU).

Raz et al., Rowlands et al. and Taylor et al. are analogous art because they are from same field of endeavor of computer processing.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include wherein the replacement policy is LRU.

The suggestion/motivation for doing so would have been to provides a cache memory system for use in a general purpose computer. **(see column 4, lines 47-48 of Taylor et al.).**

Therefore, it would have been obvious to combine Taylor et al. with Raz et al. and Rowlands et al. for wherein the replacement policy is LRU to obtain the invention as specified in claims 13 and 5.

6. Claims 14, 15, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raz et al. (6,606,743) in view of Vanka et al. (5,479,636).

Claims 14 and 6

As to claims 14 and 6, Raz et al. disclose the elements as claimed except Raz et al. fails to teach the limitation of **wherein the predetermined word is the last word in the cache line.**

Vanka et al. disclose in column 12, lines 13-17, wherein the predetermined word is the last word in the cache line.

Raz et al. and Vanka et al. are analogous art because they are from same field of endeavor of computer processor system.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include wherein the predetermined word is the last word in the cache line.

The suggestion/motivation for doing so would have been to provides a concurrent cache line replacement method and apparatus. **(see column 2, lines 41-42 of Vanka et al.).**

Therefore, it would have been obvious to combine Vanka et al. with Raz et al. for wherein the predetermined word is the last word in the cache line to obtain the invention as specified in claims 14 and 6.

Claims 15 and 7

As to claims 15 and 7, Raz et al. in view of Vanka et al. are applied supra, and Vanka et al. further disclose in column 2, lines 22-35, wherein the cache line is a dirty cache line.

7. Claims 16 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raz et al. (6,606,743) in view of Vanka et al. (5,479,636) as applied to claims 15 and 7 above, and further in view of Taylor et al. (5,699,551).

Claims 16 and 8

As to claims 16 and 8, Raz et al. in view of Vanka et al. disclose the elements as claimed except Raz et al. in view of Vanka et al. fails to teach the limitation of **wherein the dirty cache line is invalidated if the predetermined word in the dirty cache line is the first word.**

Taylor et al. disclose in column 16, lines 37-43, wherein the dirty cache line is invalidated if the predetermined word in the dirty cache line is the first word.

Raz et al., Vanka et al. and Taylor et al. are analogous art because they are from same field of endeavor of computer processing.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include the dirty cache line is invalidated if the predetermined word in the dirty cache line is the first word.

The suggestion/motivation for doing so would have been to provides a cache memory system for use in a general purpose computer. **(see column 4, lines 47-48 of Taylor et al.).**

Therefore, it would have been obvious to combine Taylor et al. with Raz et al. and Vanka et al. for wherein the dirty cache line is invalidated if the predetermined word in the dirty cache line is the first word to obtain the invention as specified in claims 16 and 8.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence W. Luk whose telephone number is 571-272-2080. The examiner can normally be reached on 7 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on (571)272-4201. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LWL
March 15, 2006

Lawrence Hill
examiner
3/15/06